The claimed feature of claim 7, which was not rejected as anticipated by Meyer, has been incorporated into claim 1 so that this claim, as well as claims 2, 3, 9 and 10, which depend on claim 1, comply with 35 U.S.C. 102(b).

3. In the Office Action, the Examiner rejected claims 1, 2, 5, 8-10 under 35 U.S.C. 102(b) as being anticipated by Kubena, Jr. et al. (5211250).

The claimed feature of claim 7, which was not rejected as anticipated by Kubena, has been incorporated into claim 1 so that this claim, as well as claims 2, 5, 9 and 10, which depend on claim 1, comply with 35 U.S.C. 102(b).

4. In the Office Action, the Examiner rejected claims 1, 2, 5 and 7-10 under 35 U.S.C. 102(b) as being anticipated by Hewgill et al. (4787453).

It is known from the state of the art that clay comprises clay galleries. It is known from the sate of the art that the terms "clay galleries" (that are present in claim 1) refer to the clay galleries constituted by the interlamellar layers of the clay (patent application, p.7, l. 7 and 8), which have a very short d-spacing, generally comprised between 10 and 20 Angströms.

Hewgill teaches a method of stabilizing a fines-containing formation using a composition comprising organosilicons. These organosilicons are said to be water-soluble because they form water-soluble silanols by hydrolysis (col. 2, l. 61-66). It is well known that these organosilicons react with active sites on siliceous surfaces of the clay with which it comes in contact. Then, said organosilicons hydrolyze and form silanols,

which are reactive intermediates, said silanols condensing to form a polymer covalently bonded to the rock surface.

According to the Examiner, since the compositions of the cited documents, including Hewgill, are in a liquid form, then they must enter into the clay galleries.

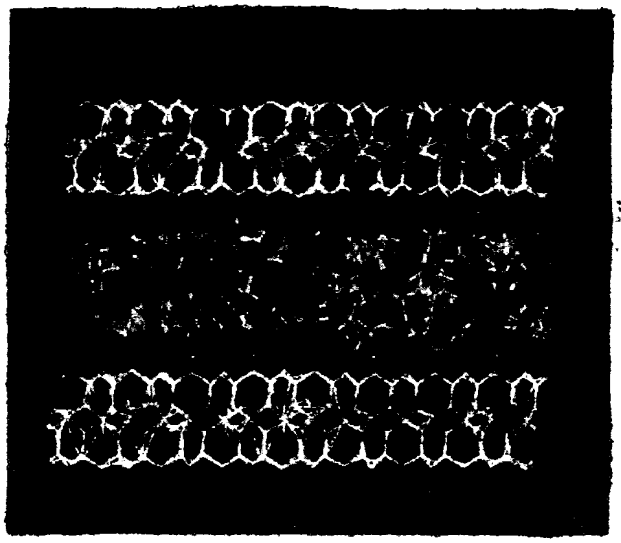
Applicant does not agree. Hewgill fails to teach that the water-insoluble organosilicons intercalate into clay galleries. Hewgill fails to teach that the reactive intermediates, the silanols, intercalate clay galleries. On the contrary, it indicates that the organosilicons react when they come in contact with the surface of a siliceous material (and, before intercalating the galleries, the molecules should come into contact with material surface): a hydrolysis takes place on said surface to form water-soluble reactive intermediates which polymerize on said surface to form a coating. In any case, it fails to teach that a polymerization may occur in clay galleries.

Therefore, it is respectfully submitted that claim 1, which recites in part that

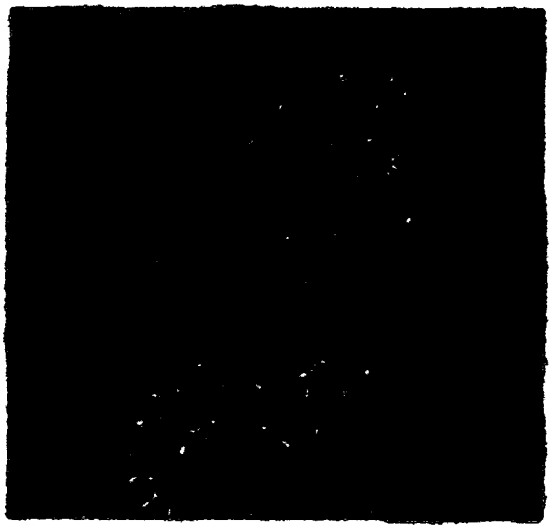
- the reactants are allowed to intercalate into clay galleries; and
- polymerization takes place within said galleries, in the presence of clay,

is not anticipated by Hewgill and that claims 2-6, 9 and 10, which depend on claim 1, are not anticipated by Hewgill at least for the same reasons as stated with respect to claim 1.

5. The first image hereunder is a model of the reaction products obtained according to the method of the invention.



The second image is a model which shows the reactants as they may be oriented within the clay galleries, such orientation being thought to help the molecules to self-assemble prior to *in situ* polymerization.



CONCLUSION

In light of the above amendments and remarks, the Applicants believe that the present application and claims 1-6, 9 and 10 are in proper condition for allowance. Such allowance is hereby requested.

Attached hereto are marked-up and clean versions of the claims captioned "**Version with markings to show changes made**" and "**Clean Version of the Claims**" respectively.

Respectfully submitted,

Stephen Schlather
Reg. No. 45,081
Attorney for Applicants

Date: January 22, 2003
Schlumberger Technology Corporation -
IP Dept. Well Stimulation
110 Schlumberger Drive, MD1
Ph: 281-285-4524
Fax: 281-285-8569

VERSION WITH MARKINGS TO SHOW THE CHANGES MADE

Claims 7 and 8 have been canceled.

Claim 1 has been amended as follows:

1. (twice amended) A method of stabilizing a clayey geological formation surrounding a hydrocarbon well comprising the steps of:

injecting from a surface reservoir a fluid comprising a first and a second reactant;

letting said fluid contact said clayey formation;

stabilizing said formation by using a reaction between said first and said second reactant, wherein said reaction in the presence of clay.

2. The method of claim 1, wherein the reaction comprises a condensation stabilization with or without pH adjustment.

3. The method of claim 1, wherein the first reactant is a diamine or a polyhydric alcohol and the second reactant comprises at least one carbonyl group.

4. The method of claim 1, wherein the first reactant is a diamine or a dihydric alcohol and the second reactant comprises at least one carbonyl group.

5. A method of drilling a wellbore into a potentially hydrocarbon bearing formation comprising the steps of drilling part of said wellbore through a clayey formation and using a method in accordance with claim 1 to stabilize said formation.

6. The method of claim 1, wherein the reaction comprises a stabilization through epoxide ring opening under neutral or acidic conditions.

7. The method of claim 1, wherein the reaction comprises a stabilization through epoxide ring opening under basic conditions.

8. The method of claim 1 comprising the step of following intercalation of the second reactive fluid phase.

9. The method of claim 1, wherein said reaction takes place inside the clay galleries.

10. The method of claim 1, wherein the reaction product of said reaction is intercalated in the clay galleries.